

## **STATEMENT OF WORK**

### **Stanislaus River Salmonid Habitat Use Investigation**

#### **A. General Information**

##### **A.1 Introduction**

Reclamation has identified a need to characterize habitat-flow relationships for Chinook salmon and rainbow/steelhead trout on the Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River. This Statement of Work (SOW) describes the tasks needed to conduct a preliminary investigation to test survey methods, validate the data analysis approach, and define how best to expand the effort to the entire Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River.

##### **A.2 Scope of Work**

This project is a field intensive investigation that will result in an Initial Study Report (Report). The Report shall define a scientifically defensible methodology to describe the effects of changes in flow on habitat use, availability, and quality for Chinook salmon and rainbow/steelhead trout on the lower Stanislaus River. The Initial Study Report will be based on data collected at five sample reaches during two discrete flows and will include: 1) geo-referenced maps that describe habitat use, density and distribution of Chinook salmon and rainbow/steelhead trout between each flow, 2) corresponding habitat maps that quantify and characterize habitat availability and suitability for salmonid species, 3) identifies discernible differences between fish habitat use and habitat parameters at each discrete flow, and 4) identifies how to expand the effort to the entire Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River.

##### **A.3 Applicable Documents**

Background information regarding the status of salmonid populations, management, and restoration activities on the Stanislaus River to date is available on the Stanislaus River Fish Group's (SRFG) website at: <http://www.delta.dfg.ca.gov/srfg/index.asp>.

#### **B. Work Requirements**

**Task 1. Project Management and Safety** – Project Management activities will be required during all Phases of the project. The Contractor shall appoint a Project Manager (PM) that will be the point of contact for all matters related to the project. The PM will work closely with Reclamation's Contracting Officer's Representative (COR) to apply the knowledge, skills, tools, and techniques to project activities necessary to meet the project requirements. Project controls will be put in place sufficient to report progress in terms of earned value at the subtask level. The Contractor shall maintain a Project Binder with all applicable project documents including WBS, meeting notes, schedules, and status reports.

**SubTask 1.1 Work Breakdown Structure (WBS) and Schedule:** The Contractor shall maintain a current WBS throughout the performance period of the project. The WBS shall describe time and resources required

for each project activity at the Subtask level. The Contractor shall provide a project schedule based on the tasks identified in this statement of work and as defined in the WBS.

**Deliverables:**

- I. A WBS and project schedule for initial project activities shall be submitted within 10 business days after Date of Award (DOA). The initial submittal shall focus on tasks to be initiated or completed within the first 30 business days after the DOA. The Contractor is encouraged to work closely with the COR in the development of this deliverable to expedite Reclamation's review and acceptance of the WBS. Reclamation will provide written review and acceptance of the initial WBS and project schedule within 5 working days of receipt. Reclamation's approval of invoices will be limited to those tasks contained in the accepted WBS.
- II. The Contractor shall develop a WBS for work required to complete the Initial Study Report (Subtask 4.3) within 30 business days of the DOA. Reclamation will provide written review and acceptance of the comprehensive WBS within 10 business days of receipt. The Contractor shall submit written requests to Reclamation for changes to WBS throughout the performance period of the project. Reclamation will review proposed changes to the WBS and provide comments within 10 business days of receipt.

**SubTask 1.2 Job Hazard Analysis and Safety:** The Contractor shall provide a Job Hazard Analysis (JHA) and Safety Plan prior to beginning fieldwork. Reclamation will provide a JHA and Safety Plan template within 10 business days of the DOA. Reclamation's Safety Officer will review and approve both documents prior to implementation of fieldwork. The Contractor shall provide written notification to Reclamation for revisions to the JHA and safety plan as needed. A copy of the current JHA and safety plan shall be kept on file at Reclamation.

**Deliverables:**

- III. The Contractor shall provide a Reclamation approved JHA and Safety Plan prior to proceeding with fieldwork. Reclamation will provide a JHA and Safety Plan template within 10 business days of the DOA. Reclamation will review and provide comments to the Contractor within 10 working days of receiving the draft JHA and Safety Plan. A copy of the current JHA and safety plan shall be kept on file at Reclamation.

**SubTask 1.3 Status Reports:** The Contractor shall provide written monthly status reports to Reclamation describing project progress in terms of earned value relative to successful project completion. The Contractor shall provide written notification to Reclamation requesting revisions to the project scope, schedule, and/or deliverables as needed.

**Deliverables:**

- IV. The Contractor shall provide the first monthly status report 30 business days after the DOA and every 20 business days thereafter throughout the performance period of the contract. Reclamation will review and provide comments to the Contractor within 5 working days of receiving the monthly status reports.

**Task 2. Stakeholder Coordination** – Coordination is necessary in order to integrate existing knowledge into this effort, maintain communication among stakeholders, and provide stakeholders the opportunity to review and comment on the project.

The Contractor shall coordinate with local, state, and federal agencies, stakeholder groups, and other interested parties throughout the entire performance period of the project as needed and under Reclamation's direction.

**Subtask 2.1 Stakeholder Involvement** – Throughout the performance period of the contract, the Contractor shall coordinate project activities with ongoing monitoring activities within the basin and among interested stakeholders including the California Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (FWS), Anadromous Fish Restoration Program (AFRP), NOAA Fisheries (NOAA), Stanislaus River Fish Group (SRFG), and other self identified interested parties as directed by Reclamation. The Contractor shall provide project updates and presentations as needed at monthly Fish Group meetings. The Contractor shall provide two formal PowerPoint presentations to update participants in the New Melones Revised Plan of Operations (RPO) effort. Meetings are typically held at the FWS offices in Stockton or at Stockton East Water District.

**Deliverables:**

- V. The Contractor shall provide written/oral project updates at monthly SRFG meetings (16 meetings throughout performance period). The Contractor shall provide two formal PowerPoint presentations to update participants in the New Melones Revised Plan of Operations (RPO) effort. Reclamation will provide at least 15 business days notice prior to meeting date to allow the Contractor adequate time to prepare updates and presentations. The Contractor shall provide Reclamation opportunity to review of project updates and presentations 5 business days prior to meetings. Reclamation will provide comments to the Contractor at least 2 business days prior to meetings.

**Subtask 2.2 Study Plan Scoping** - The Contractor shall conduct a scoping meeting with SRFG participants including but not limited to DFG, FWS, AFRP, and NOAA to present the study plan and collect comments regarding salmonid life stage(s) of interest, sample reach locations, appropriate flow ranges to be tested, and data collection methodologies.

**Deliverables:**

- VI. Scoping report and final study plan that includes meeting notes, comments from stakeholders, and a final study plan that incorporates appropriate revisions based on

stakeholder comments. Scoping meeting shall be scheduled within 25 business days of contract award. Draft scoping report and study plan shall be delivered for Reclamation review within 10 days after scoping meeting. Reclamation will provide revisions and approval of scoping report and study plan (including salmonid life stage(s) of interest, sample reach locations, appropriate flow ranges to be tested, and data collection methodologies) within 10 days of receipt.

**Task 3. Preliminary Field Surveys** – The Contractor shall conduct fish and habitat surveys at five reaches (reach length at least 1/2 mile long) during two discrete flow levels on the Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River as defined in the final study plan and in the following Subtasks:

**Subtask 3.1 Fisheries surveys** - The Contractor shall make visual observations to quantify Chinook salmon and rainbow/steelhead trout presence/absence, density/abundance, and size distribution at each site in accordance with the Reclamation approved study plan (Subtask 2.2). The Contractor shall identify and validate techniques or alternatives for fish habitat use surveys and habitat delineation where low water clarity prevents collection of suitable data by visual observation. The Contractor shall conduct efficiency tests and calculate sampling error appropriate for each of the selected survey methods. The Contractor shall provide hard copies or electronic copies of field data for Reclamation review. The Contractor shall record fish habitat use data by delineating areas on aerial images (June 2004 aerial imagery will be supplied by Reclamation as described in C.3.2 Government-Furnished Material and Services) and with a global positioning system (GPS). The Contractor shall record predator species observed, relative abundance, and size ranges along with the salmonid data.

**Deliverables:**

- VII. Field surveys shall occur between October and June as described in the final study plan (Deliverable VI). The contractor shall provide hard copies or scanned electronic copies (PDF format) of field data and electronic GPS files as requested by Reclamation. The field data sheets and GPS data shall be included as an appendix in the Initial Study Report (Subtask 4.3).

**Subtask 3.2 Physical Habitat Surveys** - The Contractor shall quantitatively describe the physical parameters of the habitats delineated above (including: depth, velocity, cover, riparian vegetation, channel slope, and distance from river mouth). Initial habitat delineation should be based on water velocity categories and then further categorized if patterns in fish use of other habitat features are apparent. The Contractor shall map cover types and habitat complexity features that appear to influence fish distribution or channel structure such as large instream woody debris, large boulders, overhanging terrestrial or aquatic vegetation, and bedrock control. The Contractor shall record habitat information on field data

sheets, GPS data dictionary, or other method that can be included as an appendix to the in the Initial Study Report (Subtask 4.3).

**Deliverables:**

- VIII. Hard copies or scanned electronic copies (PDF format) of field data sheets, electronic GPS files. Physical habitat surveys shall be conducted concurrently with Subtask 3.1 Fisheries surveys. The contractor shall provide hard copies or scanned electronic copies (PDF format) of field data and electronic GPS files as requested by Reclamation. The field data sheets and GPS data shall be included as an appendix in the Initial Study Report (Subtask 4.3).

**Task 4. Data Analysis and Reporting** – The Contractor shall incorporate all biological and physical habitat survey information (as described in Task 3 Preliminary Field Surveys) into a geo-referenced database compatible with ArcMap GIS and conduct analysis to identify discernible differences between fish habitat use and habitat parameters at each of the five sample reaches and between each discrete flow.

**Subtask 4.1 Habitat Use Maps** - The Contractor shall incorporate all data into a geo-referenced database compatible with ArcMap GIS (specifications for electronic data are described in Appendix 1: Spatial Data Standards for Geospatial Data and Related Products. The Contractor shall generate fish habitat use maps for each of the five sample reaches and at each discrete flow. The Contractor shall incorporate variance estimates into the habitat area results and fish density/abundance estimates. The Contractor shall use the GIS database and field verified accuracy calculations to calculate habitat availability (with confidence intervals) between flow ranges surveyed. The Contractor shall incorporate variance estimates into the habitat area results and fish density/abundance estimates.

**Deliverables:**

- IX. Color hard copies of fish habitat use maps for each reach and discrete flow tested shall be included in the Initial Study Report (refer to Subtask 4.3 Initial Study Report). The Contractor shall provide electronic GIS coverages and associated databases per specifications for electronic data as described in Appendix 1: Spatial Data Standards for Geospatial Data and Related Products)

**Subtask 4.2 Data Analysis** – The Contractor shall describe how habitat use, availability, and quality change relative to changes in flow for Chinook salmon and rainbow/steelhead trout. The Contractor shall conduct a comprehensive statistical analysis to determine if the tested methodologies are adequate to determine if: 1) each of the different flows tested provide conditions more or less conducive to salmonid production at the current fish populations and/or at higher fish populations, 2) differences in fish habitat use relative to flow can be discerned on an intra-annual basis, 3) habitat parameters can accurately predict differences in fish distribution

and density at and between each discrete flow, and 4) the analysis shows any identifiable limiting factors associated with salmonid spawning or fry/juvenile rearing habitat on the Stanislaus River.

**Subtask 4.3 Initial Study Report** - Provide the results of the analysis (as described in Subtask 4.2 Data Analysis) in a written report in standard scientific format (abstract, introduction, methods, results, discussion with conclusions and management recommendations, and literature cited). The Initial Study Report shall provide recommendations for expanding the habitat use mapping effort to the entire Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River. Recommendations may include new techniques for data collection methodologies, recommended data analysis tools or techniques, and/or new technical approaches that more effectively achieve the project objectives. The Initial Study Report shall also define a WBS and schedule for future efforts.

**Deliverables:**

- X. The Contractor shall provide an electronic copy (Microsoft Word) and two hard copies of Draft Initial Study Report for Reclamation review and acceptance by November 30, 2006. Reclamation will review and provide initial comments within 10 business days of receipt. The Contractor shall present the results of the Draft Initial Study to interested stakeholders during this review period. Reclamation will provide final comments and revisions to the Contractor by December 31, 2006. The Contractor shall provide an electronic copy (PDF) and two hard copies of the final Initial Study Report by January 31, 2007.

**C. Supporting Information**

**C.1 Place of Performance**

- Task 1 Not applicable
- Task 2 shall be performed at designated meeting facilities in Folsom, Sacramento, Stockton, Oakdale, or La Grange California.
- Task 3 shall be performed on the Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River.
- Task 4 Not applicable

**C.2 Period of Performance**

The period of performance for this contract shall be from award date (anticipated September 30, 2005 to January 31, 2007).

**C.3.1 Contractor-Furnished Materials**

The Contractor shall furnish all materials necessary to complete the tasks identified in this statement of work except those identified in paragraph C.3.2.

### **C.3.2 Government-Furnished Materials and Services**

Reclamation will provide the Contractor with digital orthorectified aerial imagery circa June 2004 with the following specifications: 1) UTM Zone 10 orthorectified to 1:24K accuracy, 2) 24-bit Color balanced, and 3) 2 foot resolution. Reclamation will furnish this electronic data to the Contractor within 30 days of contract award date.

## **APPENDIX 1**

### **Spatial Data Standards for Geospatial Data and Related Products**

All deliverables shall comply with applicable international, national and Federal information technology and geographic information standards, particularly those determined by the Federal Geographic Data Committee as supporting the National Spatial Data Infrastructure.

Failure to comply with the official policy on spatial data as set forth in three Office of Management and Budget Circulars (OMB A-16, OMB A-119, and OMB A-130) and by presidential Executive Order 12906 will not be acceptable and payment for work incurred will not be forth coming until these requirements are met.

#### **1. Content:**

The data will be used to create geo-referenced maps that describe habitat use of Chinook salmon and rainbow/steelhead trout at two or more discrete flows on the Stanislaus River between Goodwin Dam and the confluence with the San Joaquin River.

#### **2. Accuracy:**

The **Bureau of Reclamation (BOR)** will specify methods, test design, and reporting requirements consistent with FGDC Standard that the contractor shall use to evaluate and report positional accuracy produced through this procurement. The National Standard for Spatial Data Accuracy is downloadable from:

<http://www.fgdc.gov/standards/documents/standards/accuracy/chapter3.wpd>

Accuracy statements reported by the contractor shall be completely and thoroughly substantiated by providing full disclosure in the form of metadata. The contractor shall ensure that the metadata is compliant with the Federal Geographic Data Committee Standard Content *Standard for Digital Geospatial Metadata, FGDC-STD-001-1998*. This document can be downloaded from:

<http://www.fgdc.gov/metadata>

#### **3. Documentation/Metadata:**

Metadata, or information describing the geospatial data, shall be included for all data layers. The National Standard for Spatial Data Accuracy is downloadable from:

<http://www.fgdc.gov/standards/documents/standards/accuracy/chapter3.wpd>

All metadata will be compliant with the Federal Geographic Data Committee Standard Content *Standard for Digital Geospatial Metadata, FGDC-STD-001-1998*. This document can be downloaded from:

<http://www.fgdc.gov/metadata>

Any geospatial databases in the form of data, database(s) and/or information products (reports, etc) produced through this procurement must be documented through the preparation of standard metadata (data about data) descriptions. Proposals shall clearly describe how this will be accomplished.

The Recipient/Contractor (A contractor provides goods or services under a contractual agreement and a Recipient receives funding through a Federal assistance document (a grant or cooperative agreement)) shall ensure that the metadata delivered is compliant with the Federal Geographic Data Committee Standard. (See link above)

Geospatial databases and metadata received from the Recipient/Contractor shall, at USBR discretion, be subject to inspection prior to acceptance. USBR will notify the Recipient/Contractor of any rejected geospatial databases and/or metadata within 60 days, to be returned to the Recipient/Contractor for correction and returned to USBR within 90 days from the rejection notification date. USBR will make payment to the Recipient/Contractor upon final acceptance of the metadata. Metadata received from the Recipient/Contractor shall be delivered in the same delivered package as the data.

#### **4. Security/Privacy:**

The Recipient/Contractor shall provide full disclosure regarding any security/privacy concerns of all data that is delivered to BOR. This will be fully documented in the metadata in accordance with the Federal Geographic Data Committee Standard Content *Standard for Digital Geospatial Metadata, FGDC-STD-001-1998*

#### **5. Specifications for Delivery of Geospatial Data:**

The following provides specifications for delivery of geospatial data that must be included in contracting statements with any organizations (internal or external) for the preparation of all databases that include any geospatial data (*geographic information system (GIS) data, Remote Sensing, Aerial Photography, computer aided drafting (CAD), imagery, global positioning system (GPS) data, etc.*) in the form of databases (*tabular or geospatial*) or map products. These contracting statements include statements of work (SOW) for any USBR work efforts that require geospatial data: Environmental documents, Technical studies, NEPA/CEQA documents, Grants, Cooperative or Interagency Agreements, Research documents, etc. Should you have any questions on this information please contact the Regional Geospatial Data Administrator, Lorri Peltz-Lewis (916-978-5271, [lpeltzlewis@mp.usbr.gov](mailto:lpeltzlewis@mp.usbr.gov))



## **6. Data Delivery Format – acceptable formats:**

All data collected or generated by the contractor during the preparation of documents will be included with the final product and stated as such in the deliverables portion of the contract. Any formats not listed below must be approved of prior to delivery or will be returned to the contractor for correction.

The data shall be delivered in one of the following formats:

- ESRI/ArcInfo export coverages - (e00 files)
- ESRI/ArcView shapefiles - with prior approval of BOR
- AutoDesk/AutoCAD files
- Flat files – tabular databases that include geospatial locations and associated information – if you are providing related tables then there must be an entity-relationship diagram that illustrates the key relate fields. MS Access, Excel, and ASCII files are acceptable.
- Images shall be delivered in a non-lossy format only:
  - GeoTIF – more on [GeoTIF standards](#)
  - ERDAS Imagine

Note: these are general guidelines and certain product types may require more detailed specifications such as resampling methods, resolutions, associated data such as ortho-photography.

**Media:** CDROM, DVD+RW, or DVD-RW

### **Projection:**

All data shall be delivered in the following projection:

Projection: **UTM** - Universal Transverse Mercator

Units: **meters**

Zone: **10 (11 acceptable for Nevada)**

Datum: **NAD27 or 83**

If the data is not created in this projection due to mapping constraints, it should be requested that the data be projected before final delivery. This projection is preferred. Any other projections must be approved of in advance and the metadata must contain full disclosure of all projection parameters.